

Abstract:

Title: Evaluation of Vertical Dimension of Occlusion Using Anthropometric Indexes Among Individuals Referring to the Faculty of Dentistry of Ardabil in 1396-97.

Introduction: Establishing vertical dimension of occlusion (VDO) is one of the important factors in prosthetic treatment procedures for edentulous patients. It is usually done in mandibular rest position which in turn is affected by different factors such as loss of teeth, patient age and amount of bone resorption after being edentulous, and also the method for determination of VDO (relaxation, swallowing, phonetic...), and patient position. An ideal method for determining VDO in terms of cost, time, and instrument requirements has been sought in prosthodontics by various investigators. However, no such single method has been formulated. The objective of the study was to evaluate the the reliability of different anthropometric measurements for determination of VDO in individuals referring to the faculty of dentistry of Ardabil. The hypothesis was that facial measurements can be used to obtain VDO for edentulous patients where no pre-extraction records exist.

Materials and Methods: Total of 195 participants with the age ranging between 20 to 60 years from individuals referring to the faculty of dentistry of Ardabil were randomly recruited in this cross-sectional study. The inclusion criteria for VDO measurement were complete set of 28 teeth from right second molar to left second molar on the maxilla and mandibular and Angle's Class I Occlusion, the exclusion criterias were, attrition, traumatic occlusion, unnormal facial asymmetry, a history of facial trauma, undergone orthodontic treatment, undergone orthognathic surgery and crowns on more than two posterior teeth without posterior stop. Four craniofacial measurements including ear length, distances of external corner of eye to tragus of ear, distance of eye exocanthion to the inner canthus(Endocanthion) of the other eye and length of the tip of thumb to tip of the index finger were recorded with digital Vernier calliper, and VDO was recorded at centric occlusion from subnasal to menton. To record VDO, the subjects were instructed to bite lightly on the posterior teeth with lips in response. The obtained data were analysed by using the Pearson's correlation and linear regression analysis(StatisticalPackage for Social Sciences software (SPSS)version 24). The level of statistical significance was determined at $P < 0.05$.

Results: Regression analysis showed that, there is significant difference ($p < 0.05$) between VDO and ear length, distances of external corner of eye to tragus of ear, distance of eye exocanthion to the Endocanthion of the other eye and length of the tip of thumb to tip of the index finger. VDO was significantly and positively correlated with all the parameters studied. In males, correlation of VDO was strongest for length of the tip of thumb to tip of the index finger ($r = 0.471$) whereas in females, it was strongest for length of ear ($r = 0.691$).

Conclusion: The result implies that, the use of anthropometric measurements, can not be exact as an adjunct for establishing VDO in individuals living in Ardabil city.

Keywords: Anthropometry, Vertical Dimension of Occlusion, Posterior bite collapse, Temporomandibular Disorders.